

# Claims

- [c1] 1. A method of allocating production starts in a manufacturing facility using a production planning system, said method comprising:
- performing a first stage of production planning to satisfy only contractually mandated minimum production starts constraints; and
  - performing a second stage of production planning to satisfy additional constraints.
- [c2] The method of claim 1, wherein said first stage of production planning only allocates production starts up to contractually mandated minimums.
- [c3] 3. The method in claim 1, wherein said first stage of production planning disables stability constraints, and said second stage of production planning enables stability constraints.
- [c4] 4. The method in claim 1, wherein said first stage of production planning disables constraints relating to customers that do not have contractually mandated minimum production starts obligations, and said second stage of production planning enables constraints relating

to customers that do not have contractually mandated minimum production starts obligations.

- [c5] 5. The method in claim 1, wherein said first stage of production planning considers part numbers, time periods and locations in said contractually mandated minimum production starts constraints.
- [c6] 6. The method in claim 1, wherein said first stage of production planning ensures that said second stage of production planning will meet contractually mandated minimum production starts constraints.
- [c7] 7. The method of claim 1, further comprising identifying instances of violations of contractual obligations.
- [c8] 8. The method of claim 1, further comprising designing possible contracts for the purpose of contract negotiation based on said production planning.
- [c9] 9. The method of claim 1, wherein said first stage of productions planning improves computerized line of said second stage of production.
- [c10] 10. A method of allocating production starts in a manufacturing facility using a linear programming production planning system, said method comprising:
  - performing a first stage of linear programming to

satisfy only contractually mandated minimum production starts constraints; and  
performing a second stage of linear programming to satisfy additional constraints.

- [c11] 11. The method in claim 10, wherein said first stage of linear programming only allocates production starts up to contractually mandated minimums.
- [c12] 12. The method in claim 10, wherein said first stage of linear programming disables stability constraints, and said second stage of linear programming enables stability constraints.
- [c13] 13. The method in claim 10, wherein said first stage of linear programming disables constraints relating to customers that do not have contractually mandated minimum production starts obligations, and said second stage of linear programming enables constraints relating to customers that do not have contractually mandated minimum production starts obligations.
- [c14] 14. The method in claim 10, wherein said first stage of linear programming considers part numbers, time periods and locations in said contractually mandated minimum production starts constraints.
- [c15] 15. The method in claim 10, wherein said first stage of

linear programming ensures that said second stage of linear programming will meet contractually mandated minimum production starts constraints.

[c16] 16. The method in claim 10, wherein said first stage of linear programming allows said second stage of linear programming to allocate production starts based on constraints other than said contractually mandated minimum production starts constraints.

[c17] 17. A method of allocating wafer starts in a wafer foundry using a linear programming production planning system, said method comprising:

performing a first stage of linear programming to satisfy only contractually mandated minimum wafer starts constraints; and

performing a second stage of linear programming to satisfy additional constraints.

[c18] 18. The method in claim 17, wherein said first stage of linear programming only allocates wafer starts up to contractually mandated minimums and additional wafer starts are allocated in said second stage of linear programming.

[c19] 19. The method in claim 17, wherein said first stage of linear programming disables stability constraints, and

said second stage of linear programming enables stability constraints.

[c20] 20. The method in claim 17, wherein said first stage of linear programming disables constraints relating to customers that do not have contractually mandated minimum wafer starts obligations, and said second stage of linear programming enables constraints relating to customers that do not have contractually mandated minimum wafer starts obligations.

[c21] 21. The method in claim 17, wherein said first stage of linear programming considers part numbers, time periods and locations in said contractually mandated minimum wafer starts constraints.

[c22] 22. The method in claim 17, wherein said first stage of linear programming allows said second stage of linear programming to allocate wafer starts based on constraints other than said contractually mandated minimum wafer starts constraints.

[c23] 23. A method of allocating production starts in a manufacturing facility using a linear programming production planning system, said method comprising:  
performing a first stage of linear programming to satisfy only contractually mandated minimum pro-

duction starts constraints;  
performing a second stage of linear programming to  
satisfy additional constraints; and  
identifying backordered demands based on said second stage of linear programming.

[c24] 24. The method in claim 23, wherein said second stage of linear programming forecasts customer shipments, and wherein said process of identifying backordered demands compares customer demands with said customer shipments.

[c25] 25. The method in claim 23, wherein customer demands that are not satisfied by customer shipments on time are classified as backordered demands.

[c26] 26. The method in claim 23, further comprising tracing said backordered demands through a supply chain to identify corresponding production starts.

[c27] 27. The method in claim 23, further comprising comparing said backordered demands with contractual obligations to identify contractual violations.

[c28] 28. The method in claim 23, performing corrective actions to eliminate said contractual violations.

[c29] 29. A method of allocating production starts in a manu-

facturing facility using a linear programming production planning system, said method comprising:

performing a first stage of linear programming to satisfy only contractually mandated minimum production starts constraints;

performing a second stage of linear programming to satisfy additional constraints; and

evaluating the impact of proposed contracts using results of said first stage of linear programming and said second stage of linear programming.

[c30] 30. The method in claim 29, wherein said proposed contracts include minimum manufacturing starts.

[c31] 31. The method in claim 29, wherein said process of evaluating the impact of proposed contracts determines whether said manufacturing facility can satisfy minimum manufacturing starts contained within said proposed contracts.

[c32] 32. The method in claim 29, wherein if said process of evaluating the impact of proposed contracts determines that said manufacturing facility cannot satisfy minimum manufacturing starts contained within said proposed contracts, said proposed contracts are revised and said evaluating process is repeated.

[c33] 33. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform a method of allocating production starts in a manufacturing facility using a linear programming production planning system, said method comprising:

performing a first stage of linear programming to satisfy only contractually mandated minimum production starts constraints; and

performing a second stage of linear programming to satisfy additional constraints.

[c34] 34. The program storage device in claim 33, wherein said first stage of linear programming only allocates production starts up to a contractually mandated quantity.

[c35] 35. The program storage device in claim 33, wherein said first stage of linear programming disables stability constraints, and said second stage of linear programming enables stability constraints.

[c36] 36. The program storage device in claim 33, wherein said first stage of linear programming disables constraints relating to customers that do not have contractually mandated minimum production starts obligations, and said second stage of linear programming enables

constraints relating to customers that do not have contractually mandated minimum production starts obligations.

- [c37] 37. The program storage device in claim 33, wherein said first stage of linear programming considers part numbers, time periods and locations in said contractually mandated minimum production starts constraints.
- [c38] 38. The program storage device in claim 33, wherein said first stage of linear programming ensures that said second stage of linear programming will meet contractually mandated minimum production starts constraints.
- [c39] 39. The program storage device in claim 33, wherein said first stage of linear programming allows said second stage of linear programming to allocate production starts based on constraints other than said contractually mandated minimum production starts constraints.